From Core Equipment to Total Process Solutions

MORIMATSU
Your Needs · Our Drive

Single-use System

www.morimatsu-LifeSciences.com

MORIMATSU
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Europe

Stockholm Office
Danvik Center 28
131 30 Nacka Sweden
E-mail：info@pharmadule.com
Tel：+46 (8) 587 42 000

Milan Office
Centro Direzionale Milano Due, Palazzo Bernini,
Via Fratelli Cervi 20054 Segrate (MI) Italy
E-mail：info@pharmadule.com
Tel：+39 02124120204

U.S.A

New Jersey Office
101 Morgan Lane, Suite 303, Plainsboro,
NJ 08536
E-mail：info@pharmadule.com
Tel：+1（908）722-6845

Houston Office
11490 Westheimer Road, Ste800. Houston,
Texas 77077
E-mail: info@pharmadule.com
Tel: 281-597-8515

Asia Pacific

Shanghai Office
No.29,Jinwen Road,Zhuqiao Airport Industrial
Park,Shanghai,China
E-mail:smp_info@morimatsu-LifeSci.com
Tel:+86 21 38112058

Yokohama Office
23-6 Fujimi Bldg., Minamifujisawa Fujisawa
Kanagawa 251-0055 Japan
E-mail: smp_info@morimatsu-LifeSci.com
Tel: +81-466-52-4505

Gifu Office
1430-8,Minobe,Gifu,501-0413,Japan
E-mail: smp_info@morimatsu-LifeSci.com
Tel: +81-58-323-0333

Mumbai Office
502/503, Lodha Supremus II, Road no. 22,
Wagle Industrial Estate, Next to New Passport
office, Thane (W) - 400 604
E-mail: smp_info@morimatsu-LifeSci.com
Tel: +912248904400

Singapore Office
3 Fusionopolis Place #02-52 Galaxis Work
Loft Singapore 138523
E-mail: smp_info@morimatsu-Lifesci.com
Tel: +6565134156

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About **Morimatsu**

From the start in Japan, Morimatsu has grown and today is a diversified multinational corporation with vast experience and professional know-how in fields of process engineering equipment as well as modular engineering solutions. Our company has established long-term collaboration relationships with numerous well-known global corporations. We have companies in Sweden, Italy, US, India, Singapore, together with the large scale operation and manufacturing facilities in Asia. So far, Morimatsu has delivered projects to more than 40 countries/regions in the world, established an excellent industrial reputation in the process.

Morimatsu is dedicated in providing core equipment, process systems, integrated engineering solutions, modular plants, and digital operations for life sciences, fast-moving consumer goods, and aesthetics industries.

Our highly skilled professional teams, which include project managers, design engineers, validation experts, and operational technicians, continuously bringing clients the most advanced industrial concepts as well as cutting-edge technologies.

Corporate **Culture**

Our Vision

To be a global leading supplier for core equipment, process systems, and integrated engineering solutions.

Our Mission

To provide reliable products and services with our continued innovations that enables more people to live in a healthier, and more beautiful and convenient world.

Our Value

Human Oriented with Respect
Society, our company, its employees, and their families has formed a community of shared future. Morimatsu is a people-oriented organization that provides opportunities, advancements, and respect for its employees towards mutual-growth.

Client First for Partnerships
The client's needs drive our company's growth and development. To constantly provide outstanding products and excellent services for our clients is the foundation on which the company's value is forged. Morimatsu proudly serves our clients through close collaborations, strong partnerships, and win-win prospects.

Brand of Morimatsu: Standing Out for Outstanding
Craftsmanship is the company's spirit for perfect quality and professionalism, which assures that no detail will be ignored. We are constantly pursuing client satisfaction with firm commitments and lasting devotion.

Innovating for Sustainability
Innovations empower the sustainable growth of our company, which also satisfies both internal and external needs for constant changes and evolution.

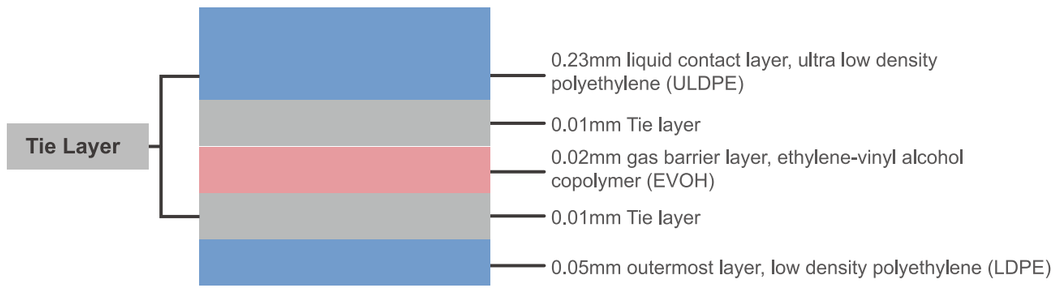
Film Overview

Morimatsu LifeSciences uses high quality films to manufacture its single-use aseptic bags. These biopharmaceutical films are ultra-clean, co-extruded, and of medical grade, and designed to be compliant with industry standards and subject to stringent change control management. Its structure is several layers of materials arranged in the following order: LDPE (low density polyethylene), Tie, EVOH (ethylene/vinyl alcohol copolymer), Tie, and ULDPE (ultra low density polyethylene). The film offers good mechanical strength, high puncture and tear resistance, excellent chemical inertness, and produces ultra-low levels of extractables and leachables. In addition, for customers with special requirements, Morimatsu can propose other types of low cost solutions.

We exercise strict control over technology and quality, and the products come with qualified and comprehensive material certification and validation documentation. Customers can be assured that the physical properties, gamma radiation tolerance, chemical compatibility, and biosafety of the products are fully compliant with the most stringent biopharmaceutical specifications.

Item	Test Value (before / after irradiation)	Reference standard
Haze	7/7,%	ASTM D-1003
Transparency	97/97,%	ASTM D-1003
Transmittance	93/93,%	ASTM D-1003
Tensile strength	14/13,MPa	ASTM D-882
Tensile strength at break	280/300,%	ASTM D-882
Modulus of elasticity	370/350,%	ASTM D-882
Minimum tolerable temperature	≤ -80 °C / ≤ -80 °C	ISO 8570
Density	0.9g/m³	ASTM D-792
Water vapor permeability	0.35 / 0.32 g / (m² * day)(23 ℃, 100 %RH)	ASTM F-1249
Oxygen permeability	<0.05 / <0.05 cm³ / (m² * day * bar)(23 ℃, 0 %RH)	ASTM D-3985
Carbon dioxide permeability	<0.2 / <0.2 cm³ / (m² * day * bar)(23 ℃, 0 %RH)	ASTM D-2476

Film Structure Schematic



Film Characteristics

- LDPE: resistant to external puncture, friction, and tear
- EVOH: good gas isolation performance (O_2, CO_2, water vapor, etc.)
- ULDPE: excellent chemical compatibility and biosafety

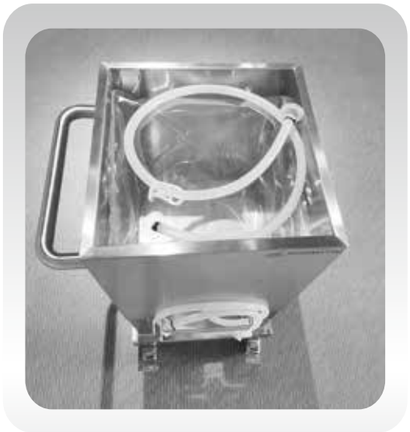
Biosafety

- IS0 10993-4: Hemolysis test
- ISO 10993-5: Cytotoxicity
- ISO 10993-6: Implantation test
- ISO 10993-10: Irritation and sensitization test
- ISO 10993-11: Acute systemic toxicity test
- USP<85>: Bacterial Endotoxins-LAL test
- USP<88>: Biological reactivity testing, in vivo, class VI
- USP<661>: Plastic Containers

  European Pharmacopoeia tests,Ch.3.1.5
- ADCF: Animal-derived component free

Single-use Storage Solution for Liquids

Liquids storage and transfer systems are crucial in the entire biological production process, and single-use storage bags are widely used in pharmaceutical processes because of the ease and convenience these bags offer. Morimatsu offers comprehensive single-use storage solutions that can meet customers' requirements. Our series of single-use storage system for liquids include 2D and 3D storage systems, weighing and feeding bags, and 3D liner bags. Of these, the 2D and 3D storage bags have capacities ranging from 5mL to 3,000 L, and are compatible with storage holders from different manufacturers that are currently available on the market. Our products are designed to be highly adaptable and can be customized as needed.



Scope of Application:

- Aseptic storage and transfer of buffers and media
- Collection and transfer of cell harvesting solution
- Collection of purified components
- Filtration and storage of intermediates
- Harvest and storage of stock solutions
- Transport of final products

Product Features and Strengths:

- All single-use products are produced in Grade A + Grade C environment, and all materials and accessories required are pre-cleaned to ensure the highest level of cleanliness in our products.
- Product configuration can be flexibly adapted to provide customization services.
- With capacities ranging from 5mL to 3,000L, the bags can meet the requirements of most production conditions and applications.
- 2D bags are formed through integrated molding and designed to retain minimal residues.

Technical Parameters:

Product data

Specifications	5mL – 3000 L,customizable to suit various specifications
Operating temperature	-80 °C (minimum) to +60 °C
Sterilization	Gamma irradiation (25 – 40 kGy)
Packaging	Double-layered PE bag, vacuum packed
Structure	LDPE / EVOH / ULDPE (liquid contact layer)
Thickness	0.325mm
Compliance	IS0 10993-4: Hemolysis test
	ISO 10993-5: Cytotoxicity
	ISO 10993-6: Implantation test
	ISO 10993-10: Irritation and sensitization test
	ISO 10993-11: Acute systemic toxicity test
	USP<85>: Bacterial Endotoxins-LAL test
	USP<88>: Biological reactivity testing, in vivo, class VI
	USP<661>: Plastic Containers European Pharmacopoeia tests,Ch.3.1.5
	ADCF: Animal-derived component free

Standard 2D Storage Bags

Product No.	Specifications	Tube 1	Tube 2	Tube 3 (sampling)
BC-0005A1	5mL	1/8” * 1/4”Platinum cured silicone tube (10 cm) + Female Ruhr connector	NA	NA
BC-0050A1	50mL	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Female Ruhr connector	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Male Ruhr connector	NA
BC-0050A2	50mL	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	NA
BC-0100A1	100mL	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Female Ruhr connector	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Male Ruhr connector	NA
BC-0100A2	100mL	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	NA
BC-0250A1	250mL	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Female Ruhr connector	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Male Ruhr connector	1/8" * 1/4" platinum cured silicone tube (10 cm) + needle-free sampler
BC-0250A2	250mL	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	1/8" * 1/4" platinum cured silicone tube (10 cm) + needle-free sampler
BC-0500A1	500mL	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Female Ruhr connector	1/8” * 1/4”Platinum cured silicone tube (30 cm) + Male Ruhr connector	1/8" * 1/4" platinum cured silicone tube (10 cm) + needle-free sampler
BC-0500A2	500mL	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	1/8" * 1/4" thermoplastic tube (30 cm) + tube plug	1/8" * 1/4" platinum cured silicone tube (10 cm) + needle-free sampler

★ **Products can be customized to meet customers' requirements.**
For more information, call the sales hotline at +86-21-58078857

Product No.	Specifications	Tube 1	Tube 2	Tube 3 (sampling)
BC-XXXA1 series	1L/2L	1/4" * 3/8"platinum cured silicone tube (50 cm) + Female MPC connector (quick)	1/4" * 3/8"platinum cured silicone tube (50 cm) + Male MPC connector (quick)	1/4" * 3/8" platinum cured silicone tube (15 cm) + needle-free sampler
	3L/5L/10L 20L/30L/50L	3/8" * 5/8"platinum cured silicone tube (50 cm) + Female MPC connector (quick)	3/8" * 5/8"platinum cured silicone tube (50 cm) + Male MPC connector (quick)	
BC-XXXA2 series	1L/2L	1/4" * 3/8"platinum cured silicone tube (50 cm) + TC50 connector	1/4" * 3/8"platinum cured silicone tube (50 cm) + TC50 connector	
	3L/5L/10L 20L/30L/50L	3/8" * 5/8"platinum cured silicone tube (50 cm) + TC50 connector	3/8" * 5/8"platinum cured silicone tube (50 cm) + TC50 connector	
BC-XXXA3 series	1L/2L	1/4" * 3/8"platinum cured silicone tube (50 cm) + TC25 connector	1/4" * 3/8"platinum cured silicone tube (50 cm) + TC25 connector	
	3L/5L/10L 20L/30L/50L	3/8" * 5/8"platinum cured silicone tube (50 cm) + TC25 connector	3/8" * 5/8"platinum cured silicone tube (50 cm) + TC25 connector	
BC-XXXA4 series	1L/2L	1/4" * 3/8" thermoplastic tube (40 cm) + tube plug	1/4" * 3/8" thermoplastic tube (40 cm) + tube plug	
	3L/5L/10L 20L/30L/50L	3/8" * 5/8" thermoplastic tube (50 cm) + tube plug	3/8" * 5/8" thermoplastic tube (50 cm) + tube plug	

★ **Note: "XXX" indicates volume. For example, "001" refers to 1L, while "100" refers to 100L.**

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Standard liner Bag

Product No.	Specifications	Suitable for	Top	Bottom
TC-019A1	19L	Drum	Open design	NA
TC-019A2	19L	Drum	Open design	3/8" * 5/8" platinum cured silicone tube (50 cm) + TC50 connector
TC-038A1	38L	Drum	Open design	NA
TC-038A2	38L	Drum	Open design	3/8" * 5/8" platinum cured silicone tube (50 cm) + TC50 connector
TC-057A1	57L	Drum	Open design	NA
TC-057A2	57L	Drum	Open design	3/8" * 5/8" platinum cured silicone tube (50 cm) + TC50 connector
TC-113A1	113L	Drum	Open design	NA
TC-113A2	113L	Drum	Open design	3/8" * 5/8" platinum cured silicone tube (50 cm) + TC50 connector
TC-208A1	208L	Drum	Open design	NA
TC-208A1	208L	Drum	Open design	3/8" * 5/8" platinum cured silicone tube (50 cm) + TC50 connector
TC-303A1	303L	Drum	Open design	NA
TC-303A2	303L	Drum	Open design	3/8" * 5/8" platinum cured s ilicone tube (50 cm) + TC50 connector

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Standard 3D Storage Bags

Morimatsu offers standard 3D storage bags that are compatible with 3D holders (square plastic foldable boxes, stainless steel equipment) from Morimatsu. 3D storage bags are part of the SC series. Morimatsu also supplies standard 3D storage bags compatible with other manufacturers' holders that are available in the market for precise fitting, supply stability, and fast delivery.

Square 3D storage bags have capacities ranging between 50 L to 3,000 L. They can be standalone containers to store buffers, media, intermediates or stock solutions, or used together with sterilizing filters for fast transportation as well as aseptic transfer and storage of liquids.

Product No.	Specifications	Tube 1	Tube 2	Tube 3 (sampling)
SC-XXXA1 series	100L/200L 500L/1000L	1/2" * 3/4" platinum cured silicone tube (150 cm) + male MPX connector	1/2" * 3/4" platinum cured silicone tube (150 cm) + male MPX connector	1/4" * 3/8" platinum cured silicone tube (15 cm) + needle-free sampler
SC-XXXA2 series	100L/200L 500L/1000L	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC50 connector	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC50 connector	
SC-XXXA3 series	100L/200L 500L/1000L	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC25 connector	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC25 connector	
SC-XXXA4 series	100L/200L 500L/1000L	1/2" * 3/4" thermoplastic tube (100 cm) + tube plug	1/2" * 3/4" thermoplastic tube (100 cm) + tube plug	

★ **Note: "XXX" indicates volume. For example, "001" refers to 1L, while "100" refers to 100L.**

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Single-use
Mixing and Dispensing Solution

In pharmaceutical processes, single-use mixing bags are commonly used to facilitate the mixing of solid-liquid or liquid-liquid. The single-use 3D mixing bags from Morimatsu have capacities ranging from 1L to 3,000L. They are compatible with mixing systems from different manufacturers currently available in the market. These bags are available in cylinder and square shapes, and offer closed and unclosed mixing system options. The bags can be connected to different sensor interfaces for inline monitoring (temperature, pH, conductivity, etc.), and can be adapted for applications in R&D, pilot, and commercial production. Morimatsu offers single-use mixing solutions that are safe, stable, and efficient.

Scope of Application:

- Preparation of buffers and media
- Preparation of semi-finished products
- Homogenous mixing of purification intermediates
- Mixing of vaccine adjuvants

Product Features and Strengths:

- All single-use products are produced in Grade A + Grade C environment, and all materials and accessories required are pre-cleaned to ensure the highest level of cleanliness in our products.
- Product configuration can be flexibly adapted to provide customization services.
- With capacities ranging from 1L to 3,000L, the bags can be adapted to different mixing containers to offer a rich variety of options.
- Bags' high transparency provides a clear view of the mixing process.

Technical Parameters:

Product data

Specifications	1mL – 3000 L,customizable to suit various specifications
Operating temperature	-80 °C (minimum) to +60 °C
Sterilization	Gamma irradiation (25 – 40 kGy)
Packaging	Double-layered PE bag, vacuum packed
Structure	LDPE / EVOH / ULDPE (liquid contact layer)
Thickness	0.325mm
Compliance	ISO 10993-4: Hemolysis test
	ISO 10993-5: Cytotoxicity
	ISO 10993-6: Implantation test
	ISO 10993-10: Irritation and sensitization test
	ISO 10993-11: Acute systemic toxicity test
	USP<85>: Bacterial Endotoxins-LAL test
	USP<88>: Biological reactivity testing, in vivo, class VI
	USP<661>: Plastic Containers European Pharmacopoeia tests,Ch.3.1.5
	ADCF: Animal-derived component free

Standard 3D Mixing Bag

The standard 3D mixing bags from Morimatsu are compatible with the mixing equipment from Morimatsu. These 3D mixing bags are part of the SJ series. The injection molded mixing blades have a rotation speed of 0 to 300rpm to provide stable and efficient mixing. For our customers, Morimatsu offers many hardware and software compatible solutions to achieve precise fitting, supply stability, and fast delivery.

Product No.	SJ-XXXA1 series	SJ-XXXA2 series
Specifications	50L/100L/200L/400L/650L	50L/100L/200L/400L/650L
	1000L/1500L	1000L/1500L
	2000L/2500L/3000L	
Tube 1	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC50 connector	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC25 connector
	3/4" * 1" platinum cured silicone tube (200 cm) + TC50 connector	3/4" * 1" platinum cured silicone tube (200 cm) + TC25 connector
	1" * 1 1/8" platinum cured silicone tube (200 cm) + TC50 connector	
Tube 2	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC50 connector	1/2" * 3/4" platinum cured silicone tube (150 cm) + TC25 connector
	3/4" * 1" platinum cured silicone tube (200 cm) + TC50 connector	3/4" * 1" platinum cured silicone tube (200 cm) + TC25 connector
	1" * 11/8" platinum cured silicone tube (200 cm) + TC50 connector	
Tube 3 (sampling)	1/4" * 3/8" platinum cured silicone tube (15 cm) + needle-free sampler	
Feeding port	4-inch feeding port	

Product No.	SJ-XXXA3 series	SJ-XXXA4 series
Specifications	50L/100L/200L/400L/650L	50L/100L/200L/400L/650L
	1000L/1500L	1000L/1500L
	2000L/2500L/3000L	
Tube 1	1/2" * 3/4" platinum cured silicone tube (150 cm) + Female MPX connector (quick)	1/2" * 3/4" platinum cured silicone tube (100 cm) +1/2" * 3/4" thermoplastic tube (50 cm) + tube plug
	3/4" * 1" platinum cured silicone tube (200 cm) + Female MPX connector (quick)	3/4" * 1" platinum cured silicone tube (150 cm) +3/4" * 1" thermoplastic tube (50 cm) + tube plug
	1" * 11/8" platinum cured silicone tube (200 cm) + Female MPX connector (quick)	
Tube 2	1/2" * 3/4" platinum cured silicone tube (150 cm) + male MPX connector	1/2" * 3/4" platinum cured silicone tube (100 cm) +1/2" * 3/4" thermoplastic tube (50 cm) + tube plug
	3/4" * 1" platinum cured silicone tube (200 cm) + male MPU connector	3/4" * 1" platinum cured silicone tube (150 cm) + 3/4" * 1" thermoplastic tube (50 cm) + tube plug
	1" * 11/8" platinum cured silicone tube (200 cm) + male MPU connector	
Tube 3 (sampling)	1/4" * 3/8" platinum cured silicone tube (15 cm) + needle-free sampler	
Feeding port	NA	

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Single-use Wave Culture System Solution

Wave reactors have been widely and successfully applied in cell culture, fermentation, and various other fields worldwide. They are suitable for cell culture on a bench scale, as well as process development and cGMP commercial production. Morimatsu provides pre-sterilized, single-use cell culture bags for Wave reactor systems. These bags provide a simple, stable, and reliable solution for high-cell-density culture. Morimatsu also offers many hardware and software compatible solutions.

Scope of Application

- Antibodies
- Vaccines
- Cell and gene therapy
- Recombinant proteins

Features and Strengths of the Single-use Wave Culture System:

- Multiple control modes: CO_2 mixing control or inline pH / DO control
- Suitable for a wide range of processes such as suspension culture, perfusion culture, microcarrier culture
- Process monitoring: precise control and tracking of key culture parameters (swing speed, angle, temperature, DO, pH, perfusion rate, etc.)
- Integrity testing: system is integrated with testing functions to comprehensively evaluate the bio-bags before use so as to prevent losses during use
- Authority management: system is compliant with GMP pharmaceutical standards for three-level authority management

Technical Parameters of Equipment:

Product data

Specifications	2L,10L,20L,50L
Swing speed control range (rpm)	2-40rpm
Swing angle control range (°)	2°-12°
Temperature sensor	PT100
Temperature control range (°C)	Room temperature: 40 ℃
Temperature control precision (°C)	±0.2℃
Range of total inlet flow rate (ml/min)	0-1000ml/min
Fast charge flow (L/min)	0-3L/min
CO_2 control range (%)	0%-15%
CO_2 control precision (%)	±0.3%
pH control range	6.0-8.0
pH control precision	±0.1pH
DO control range (%)	0%-100%
DO control precision (%)	±3%
Weighing precision (kg)	0.01kg
Electronic balance precision (g)	1g
Safety pressure (mbar)	0-30mbar

Single-use Cell Culture Bags

Single-use cell culture bags are designed for cell therapy, antibiotics, and vaccine amplification applications.

With a simple design, these bags are easy to use, and can be applied with Wave reactors for stable and rapid cell amplification. The system also supports fed-batch culture or perfusion culture modes, thereby meeting the demands for high cell density and increased yield in cell culture. The single-use cell culture bag is conducive to cell amplification culture, and is widely used in the culture of CHO, HEK293, and immune cells.

Bag Specifications	2L	10L	20L	50L
Working capacity	0.2-1L	1-5L	2-10L	5-35L
Basic model	●	●	●	●
With pH/DO	●	●	●	●
With perfusion film	●	●	●	●

Note: Choice of the pH / DO fiber glass bag and perfusionbag is based on the customer's processes.

The default option is the basic model.

Product Features and Strengths

- Culture bags: films offer high overall mechanical strength and stability. The ULDPE liquidcontact layer offers good chemical compatibility and biosafety
- Connector / tube / tube clamp: allows upstream connection to different connectors or tubes for media, cells, and other cell culture operations
- Aseptic sampling port: to facilitate aseptic sampling during cell culture
- Air inlet / outlet filter: to facilitate aseptic aeration of hydrophobic filter films
- pH & DO electrode interface: to control and test pH and dissolved oxygen (DO) during cell culture, and to allow for better maintenance of the cell growth environment
- Mounting lever: to secure the culture bag on the base of the Wave reactor

Technical Parameters of Consumables:

Product data

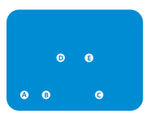
Specifications	2 L, 10 L, 20 L, 50 L,Can be customized to suit various specifications
Operating temperature	-80 °C (minimum) to +60 °C
Sterilization	Gamma irradiation (25 – 40 kGy)
Packaging	Double-layered PE bag, vacuum packed
Structure	LDPE / EVOH / ULDPE (liquid contact layer)
Thickness	0.325mm
Compliance	IS0 10993-4: Hemolysis test
	ISO 10993-5: Cytotoxicity
	ISO 10993-6: Implantation test
	ISO 10993-10: Irritation and sensitization test
	ISO 10993-11: Acute systemic toxicity test
	USP<85>: Bacterial Endotoxins-LAL test
	USP<88>: Biological reactivity testing, in vivo, class VI
	USP<661>: Plastic Containers
	European Pharmacopoeia tests,Ch.3.1.5
	ADCF: Animal-derived component free

Single-use Cell Culture Bag (Basic Model)

Product No.	WV-XXXA1
Specifications	2L
Tube A	1/4" × 7/16" C-flex tube, female Ruhr connector
Tube B	3/16" × 3/8" silicone tube, needle-free sampling
Tube C	Air inlet filter
Tube D	Air outlet filter, check valve

2LCulture Bag Schematic

Product No.	WAV-XXXA1
Specifications	20L
Tube A	1/4" × 7/16" C-Flex tube, female MPC
Tube B	1/8" × 1/4" C-flex tube, female Ruhr connector
Tube C	3/16" × 3/8" silicone tube, needle-free sampling
Tube D	Air inlet filter
Tube E	Air outlet filter, check valve

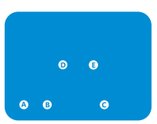


20L Culture Bag Schematic

Product No.	WV-XXXA1
Specifications	10L
Tube A	1/4" × 7/16" C-Flex tube, female MPC
Tube B	1/4" × 7/16" C-flex tube, female Ruhr connector
Tube C	3/16" × 3/8" silicone tube, needle-free sampling
Tube D	Air inlet filter
Tube E	Air outlet filter, check valve

10L Culture Bag Schematic

Product No.	WAV-XXXA1
Specifications	50L
Tube A	1/4" × 7/16" C-Flex tube, female MPC
Tube B	1/8" × 1/4" C-flex tube, female Ruhr connector
Tube C	3/16" × 3/8" silicone tube, needle-free sampling
Tube D	Air inlet filter
Tube E	Air outlet filter, check valve



50L Culture Bag Schematic